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THE PRESENT POSITION IN REGARD TO
FORMAL TRAINING.¹

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THE subject upon which I have been asked by my friend, Dr. Kimmins, to prepare an address is entitled "The Present Position with regard to Formal Training." At the outset I need hardly point out to you my various disqualifications for dealing with this topic. In the first place, I am capable of dealing solely with the position of the *psychologist* in regard to formal training; I know practically nothing of the attitude of pedagogy towards it. Secondly, in speaking of the *present* position with regard to formal training, I am grossly ignorant of the past position. Formal training must have an interesting history and development, a knowledge of which is essential to a due appreciation of its present position. My own acquaintance with the past history of formal training is almost limited to my experience as a schoolboy, when, like so many others, I had to learn by heart page after page of the *Æneid* and of doggerel rhymes about Latin genders, in order, I suppose, to educate my memory; when I had to master whole books of *Euclid*, in order to cultivate my powers of

¹ A paper read at the London County Council Conference of Teachers on January 5th.

reasoning; when my attention was enforced to material which was utterly uninteresting because it was almost incomprehensible to me, for the sake of exercising that discipline of mind which overcomes the temptations of distraction.

But I suppose that all of us here have experienced to the full the benefits of this doctrine of formal training—I mean the doctrine that the *material* which is set before the child is of little or no consequence for training his memory, observation, reasoning, and the like; and that whatever improvement in any of these powers is gained by the child's exercise at one kind of material can be utilised by him when he is confronted with other material.

The source of this doctrine may be readily traced to naïve experience. There can be no doubt that, when we learn, remember, or reason, there is in each case a common element in our experience, whatever be the material we learn, we remember, or about which we reason. Whether we learn facts of history, natural science, poetry, or carpentering, we are *impressing* experiences presented to us through our senses. Whichever of these experiences we remember, we are (in a general sense) *reviving* impressions. So, also, whatever be the material about which we reason, we have one and the same experience of drawing inferences from certain premises, of creating judgments deductively or inductively. Whence, as you know, arose the "faculty" doctrine that we have separate faculties of memory, of reasoning, of attention, imagination, observation, etc., that we have mathematical, æsthetic, and moral faculties, that the whole object of education is to train these faculties, and that the material whereby the faculties are trained is of quite secondary importance, so readily are practice

effects transferred from one material to other materials in the exercise of one and the same faculty.

Thus the doctrine of formal training is traceable to what I have called "naïve experience." But is it merely *naïve* experience? Is it not also *crude logical* experience? Is it not a part of the same topsy-turvydom which makes the adult think that grammar formed the actual starting point of language, that scales formed the actual starting point of music, whereas more mature observation shows us that grammar and scales are of late origin, deduced by races that have already passed their childhood stage? So, too, surely the child is commonly unaware that he is using the same powers of reasoning whether he be working out a rider in geometry or deducing analogies from facts of history. Thus, at the outset, it is quite conceivable that whatever truth there be in the doctrine of formal training (and I by no means wish to assert it to be destitute of truth), the doctrine may have to be stated very differently in the case of the untrained child and of the fully trained adult. The benefits derived from formal training may be quite of a different order in the child and in the adult:

The doctrine of formal training receives apparent encouragement from the trend of a very active and modern school of psychologists, who divide the subject-matter of psychology into two broad divisions—acts and contents. The act is the process of consciousness, the content is its product. Thus the act or process of learning is distinguishable from the content or product of learning, *i.e.*, from what is learnt. The act or process of attending is distinguishable from the content or product of attention, *i.e.*, from what is attended to. So also the act of discriminating is

distinguishable from what is discriminated, the act of willing from what is willed, the act of reasoning from what is reasoned. Indeed, some psychologists have gone so far as to admit only the acts as psychical, urging that the content of consciousness (sensations, percepts, images, thoughts) are as physical as external objects themselves.

Now if, according to the teaching of this school of psychologists, we specify a single act, *e.g.* the act of discrimination, as responsible for the various forms under which this act appears to manifest itself, we obviously favour the doctrine of formal training. The act naturally comes to cover all acts of apparently the same kind. It is one and the same act of the Ego—Self-activity of a certain kind. Provided that the Ego is actively, let us say, discriminating, the natural inference is that any improvement acquired in the act will be maintained and evinced independently of the nature of the content of consciousness. For example, I may practise discrimination between two weights lifted by the arm, and afterwards I may seek to discover whether the improvement thus effected is transferable to the discrimination between the lengths of two straight lines seen by the eye. In each case, it may be argued, it is the Ego that experiences one and the same act of discrimination. We are thus disposed to speak of a discriminating faculty, and to expect a ready transference of improvement—which, as a matter of fact, by no means necessarily follows.

Now let us by all means separate mental act or process from mental content or product. But let us not confuse all mental activities with Self-activity, that is to say, the Ego's experience of those mental acts or activities. Consider what

a vast psychical and physiological "mechanism," if I may use the term, is involved in the elaboration of any act, *e.g.* the act of discrimination, before the Ego can experience Self-activity of this kind, before the Ego can become conscious of that act as such. The consciousness of Self-activity, as we experience it, instead of being a primary experience, must be the ultimate and most complex expression of mental activity, the final integration of vast hierarchies of more or less independent systems. Do we not see the influence of these independent systems in our daily mental life, when we have ideas working out their own end, passing over into actual movement, without the participation of the Ego in their mental activity? In posthypnotic suggestion, again, how little share has the normal Ego in the mental activity of the ideas which are finding their way towards expression! These instances may suffice to indicate the profound change that has taken place in the modern attitude of psychology towards the Ego; they may suffice to show how much attention is being and has still yet to be paid to lower systems of activity, in which Self-activity, as we experience it, cannot be said to be involved.

Consider, for example, the changes which are produced by a lesion of the cortex of the brain. In certain lesions, the contact of two successive weights with the skin may be recognised, yet they cannot be compared. Two touches at different points on the skin may be felt, yet the spatial threshold may be unascertainable. The patient may be able to feel objects placed on the skin quite well, and yet he cannot appreciate their size or their form. But I would ask you to observe that these and other effects are confined to the functions controlled by the sensory

cortex which has been injured. If there be loss of discrimination as regards cutaneous sensibility, this loss does not involve a loss of the power of discriminating lengths of lines by the eye. If the cortex, say, of the right side be affected, the effects are confined to the left side of the body. That is to say, the loss of discriminative power is strictly local; there is no general loss, *no single faculty*, of the power of discrimination. We conclude, then, that there are numerous separate factors involved in the different kinds of discrimination. We infer that improvement in the factors involved in one kind of discrimination by no means implies improvement in the factors involved in other kinds of discrimination. In short, we see definite reasons for suspecting the *a priori* truth of the doctrine of formal training.

Thus, instead of arguing, from naïve experience or from false psychological theory, that we have a faculty of this, a faculty of that, and that consequently we only need practice in one instance of the exercise of that faculty for the improvement thus gained to be transferred to all other conditions under which that faculty is exercised—in place of this attitude we must inquire by actual investigation, not only under pathological but under normal conditions, we must discover what kinds of ability are closely related to one another, and to what extent the effects of practice are transferable from one to another kind of mental work.

I would sound one or two warning notes. In the first place, in receiving the reports of investigations and in conducting investigations yourselves, never lose sight of the individual. The one important lesson of psychology for pedagogy concerns the importance of individual differences and the worthlessness of averages.

Always suspect an average result. Treat an average figure as having that force, that warmth of intimacy, with which you would receive for your consolation or guidance the information that the average life of an individual is, say, thirty-three years. Look to the individual differences which an average or a coefficient of correlation hides under cover of its specious, but blurred, simplicity. It is true that as teachers you are concerned with children *en masse*, and that you ask for practical suggestions for *class* work. But the highest interests of the best teacher must always centre in the study of children as individuals. Therefore, when you meet with a figure giving, for example, the average improvement which thirty children, after practice at dividing short lines, are able to transfer to the subsequent division of longer lines, ask yourselves the inner meaning of this figure. What are the individual differences among the children? Are some children capable, while others are incapable, of carrying over the practice effects? Or do all the children in a very moderate degree carry over the practice effects? If only some children are so capable, while others are incapable, is it because the capable children are able to abstract the elements common to the two tasks? Can they improve even if they are unaware of the common elements? Do they fail to improve even if they are aware of the common elements? Are some too weary of the practice to benefit by it on a single subsequent occasion? To answer these questions, you must have recourse to the individual children. If you are unable to obtain introspective data from children, you must for guidance and suggestion repeat the experiments on adults, and with due caution apply your results.

Secondly, I would ask you to be moderate in your conclusions. Do not accept the common dictum that the faculty psychology is dead. It is only the old faculty psychology based on naïve experience and *a priori* reasoning which pedagogy and psychology have battled to kill. Scientific inquiry is certain to lead to the discovery of plentiful relations and connections between the different forms of mental activity. It is true that the faculty psychology which we may hope to establish in the future will bear hardly recognisable resemblance to its prototype of the past. But do not, on the basis of a handful of experiments, often heroic in their aims, yet fraught with the greatest difficulties as regards method, be led to decry too indiscriminately all the teachings of the past. Do not be led from an extreme based on the untrustworthiness of *a priori* evidence to the other extreme based on insufficient scientific inquiry. Be moderate, for example, in your deductions from the conclusion that the mind consists of a number of subsidiary functions. In a sense that is true, but we have yet to learn how these are connected together. One thing I would urge in conclusion is certain, that we should be wrong in supposing that the mind is divided into a series of innumerable water-tight compartments totally independent of one another. Were it so, the fundamental characteristic of the organism, τὸ ἐναποιοῦν, would vanish.